

AMENDMENT UNDER 37 C.F.R. § 1.116

U.S. APPLN. NO.: 09/611,229

ATTORNEY DOCKET NO.: Q58683

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Canceled).
2. (Canceled).
3. (Canceled).
4. (Canceled).
5. (Canceled).
6. (Canceled).
7. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein an active layer of said

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semiconductor laser has InGaN/InGaN quantum cell structure, ~~wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.~~

8. (Canceled).

9. (Canceled).

10. (Original): The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is caused to output pulsed excitation light having a peak value greater than or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting current.

11. (Canceled).

12. (Canceled).

13. (Canceled).

14. (Canceled).

15. (Canceled).

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16. (Canceled).

17. (Canceled).

18. (Canceled).

19. (Previously Presented): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is a broad area type semiconductor laser.

20. (Canceled).

21. (Previously Presented): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is a broad area type semiconductor laser wherein said excitation light emitted from said light source

is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.

22. (Previously Presented): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is a broad area type semiconductor laser; wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

23. (Original): The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is a broad area type semiconductor laser.

24. (Currently Amended): ~~The~~^A fluorescence observing apparatus ~~as set forth in claim 8, comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is caused to output pulsed excitation light having a peak value greater than or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting current, wherein said excitation light emitted from said light source is pulsed excitation light and~~

said excitation light irradiation means irradiates said pulsed excitation light to said sample, and
wherein said semiconductor laser is a broad area type semiconductor laser.

25. (Currently Amended): The~~A~~ fluorescence observing apparatus as set forth in
claim 11, comprising: a light source for emitting excitation light; excitation light irradiation
means for irradiating said excitation light to a sample; and fluorescence measurement means for
measuring fluorescence emitted from said sample by the irradiation of said excitation light,
wherein a GaN-based semiconductor laser is employed as said light source, wherein said
semiconductor laser is caused to output pulsed excitation light having a peak value greater than
or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting
current, wherein said excitation light emitted from said light source is pulsed excitation light and
said excitation light irradiation means irradiates said pulsed excitation light to said sample, and
wherein said semiconductor laser is driven so that an integrated value of pulse oscillation output
values of said semiconductor laser per unit time becomes less than or equal to an integrated value
of the continuous maximum output values of said semiconductor laser per unit time, and wherein
said semiconductor laser is a broad area type semiconductor laser.

26. (Canceled).

27. (Previously Presented): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence

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emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is a surface emission type semiconductor laser.

28. (Canceled).

29. (Previously Presented): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is a surface emission type semiconductor laser; wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.

30. (Previously Presented): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is a surface emission type semiconductor laser; wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

31. (Original): The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is a surface emission type semiconductor laser.

32. (Currently Amended): TheA fluorescence observing apparatus as set forth in
claim 8, comprising: a light source for emitting excitation light; excitation light irradiation means
for irradiating said excitation light to a sample; and fluorescence measurement means for
measuring fluorescence emitted from said sample by the irradiation of said excitation light,
wherein a GaN-based semiconductor laser is employed as said light source, wherein said
semiconductor laser is caused to output pulsed excitation light having a peak value greater than
or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting
current, wherein said excitation light emitted from said light source is pulsed excitation light and
said excitation light irradiation means irradiates said pulsed excitation light to said sample, and
wherein said semiconductor laser is a surface emission type semiconductor laser.

33. (Currently Amended): TheA fluorescence observing apparatus as set forth in
claim 11, comprising: a light source for emitting excitation light; excitation light irradiation
means for irradiating said excitation light to a sample; and fluorescence measurement means for
measuring fluorescence emitted from said sample by the irradiation of said excitation light,
wherein a GaN-based semiconductor laser is employed as said light source, wherein said
semiconductor laser is caused to output pulsed excitation light having a peak value greater than
or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting

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current, wherein said excitation light emitted from said light source is pulsed excitation light and
said excitation light irradiation means irradiates said pulsed excitation light to said sample, and
wherein said semiconductor laser is driven so that an integrated value of pulse oscillation output
values of said semiconductor laser per unit time becomes less than or equal to an integrated value
of the continuous maximum output values of said semiconductor laser per unit time, and wherein
said semiconductor laser is a surface emission type semiconductor laser.

34. (Canceled).

35. (Canceled).

36. (Canceled).

37. (Previously Presented): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is an array type semiconductor laser; wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.

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38. (Previously Presented): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is an array type semiconductor laser; wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

39. (Original): The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is an array type semiconductor laser.

40. (Currently Amended): ~~The~~^A fluorescence observing apparatus as set forth in claim 8, comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is caused to output pulsed excitation light having a peak value greater than or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting current, wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample, and wherein said semiconductor laser is an array type semiconductor laser.

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41. (Currently Amended): ~~The~~^A fluorescence observing apparatus ~~as set forth in claim 11, comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, wherein said semiconductor laser is caused to output pulsed excitation light having a peak value greater than or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting current, wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample, and wherein said semiconductor laser is driven so that an integrated value of pulse oscillation output values of said semiconductor laser per unit time becomes less than or equal to an integrated value of the continuous maximum output values of said semiconductor laser per unit time, and wherein said semiconductor laser is an array type semiconductor laser.~~

42. (Canceled).

43. (Original): The fluorescence observing apparatus as set forth in claim 19, wherein said semiconductor laser is an array type semiconductor laser.

44. (Original): The fluorescence observing apparatus as set forth in claim 27, wherein said semiconductor laser is an array type semiconductor laser.

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45. (Canceled).

46. (Canceled).

47. (Original): The fluorescence observing apparatus as set forth in claim 7, further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

48. (Canceled).

49. (Canceled).

50. (Canceled).

51. (Original): The fluorescence observing apparatus as set forth in claim 19, further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

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52. (Original): The fluorescence observing apparatus as set forth in claim 27, further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

53. (Canceled).

54. (Canceled).

55. (Canceled).

56. (Canceled).

57. (Previously Presented): The fluorescence observing apparatus as set forth in claim 7, wherein a pulsed excitation light is formed from a plurality of pulses.

58. (Canceled).

59. (Canceled).

60. (Canceled).

61. (Previously Presented): The fluorescence observing apparatus as set forth in claim 19, wherein a pulsed excitation light is formed from a plurality of pulses.

62. (Previously Presented): The fluorescence observing apparatus as set forth in claim 27, wherein a pulsed excitation light is formed from a plurality of pulses.

63. (Canceled).

64. (Canceled).

65. (Canceled).

66. (Canceled).